



2019 NSF ERC BIENNIAL MEETING

OCTOBER 23 – 25, 2019 | ARLINGTON, VA



ercbiennial.asee.org



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- We support education at the institutional level by linking faculty and staff across disciplines to create enhanced student learning and discovery.
- We support education across institutions by identifying opportunities to share proven and promising instructional practices.
- We support education locally, regionally, and nationally by forging and reinforcing connections between academia, business, industry, and government.
- We support discovery and scholarship among education researchers by providing opportunities to share and build upon findings.
- We support innovation by fostering the translation of research into improved practices.
- We support disciplinary technical researchers by disseminating best research management practices.

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NSF Engineering Research Center Biennial Meeting Program

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OVERVIEW

Welcome Message

The Engineering Research Centers Team is pleased to welcome you to the 2019 ERC Biennial Meeting. Because NSF views ERCs as change agents for academic engineering programs and the engineering community at large, this meeting is an opportunity to share best practices in convergent research, education, workforce development, industrial engagement, team formation, leadership models, and broadening participation. It is also a platform to meet other researchers and network for potential future collaborations among Centers. We look forward to your enthusiastic participation and discussions over the next two days.

Sandra Cruz-Pol
Deborah Jackson
and the rest of The ERC Team

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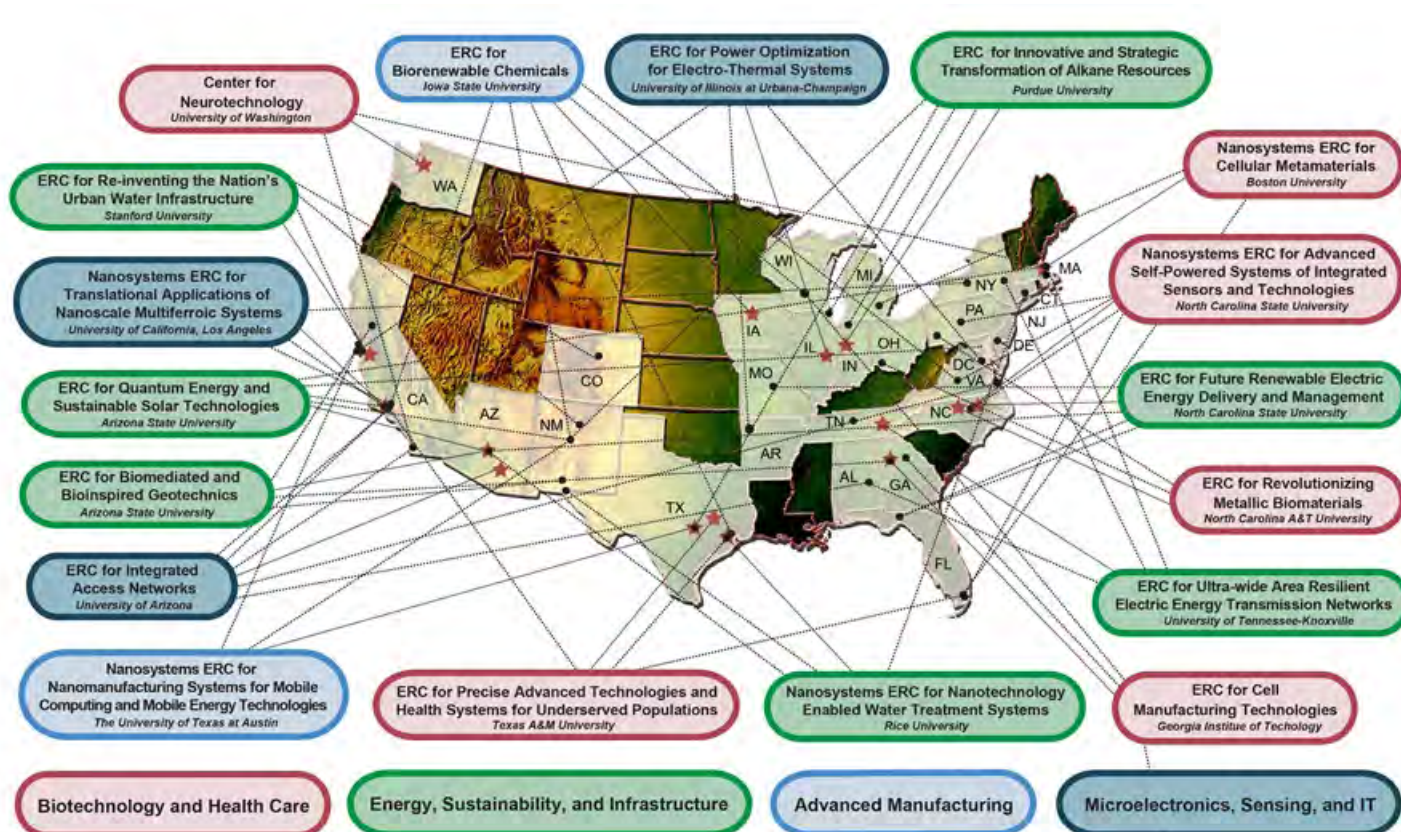
THE ERC PROGRAM

The National Science Foundation-sponsored Engineering Research Centers (ERCs) are a group of interdisciplinary centers located at universities all across the United States, each in close partnership with industry. Each ERC provides an environment in which academe and industry can collaborate in pursuing strategic advances in complex engineered systems and systems-level technologies that have the potential to spawn whole new industries or to radically transform the product lines, processing technologies, or service delivery methodologies of current industries. Activity within ERCs lies at the interface between the discovery-driven culture of science and the innovation-driven culture of engineering. The centers provide the intellectual foundation for industry to collaborate with faculty and students on resolving generic, long-range challenges, producing the knowledge base needed for steady advances in technology and their speedy transition to the marketplace.

ERC faculty, students and industry partners integrate discovery and learning in an interdisciplinary environment that reflects the complexities and realities of real-world technology.

ERCs expose prospective students (both graduate and undergraduate) to industrial views in order to build competence in engineering practice and to produce engineering graduates with the depth and breadth of education needed for success in technological innovation and for effective leadership of interdisciplinary teams throughout their careers. ERC innovations in research and education are expected to impact curricula at all levels, from precollege to life-long learning, and to be disseminated to and beyond their academic and industry partners.

ERCs fulfill NSF's strategic goal to increase the diversity of the scientific and engineering workforce by including all members of society, regardless of race, ethnicity, or gender, in all aspects of the centers' activities. Because ERCs play critical roles in academe by integrating research, education, diversity, outreach, and industrial collaboration, NSF views ERCs as change agents for academic engineering programs and the engineering community at large.



CENTERS

Advanced Manufacturing Centers

NANOSYSTEMS ERC FOR NANOMANUFACTURING SYSTEMS FOR MOBILE COMPUTING AND MOBILE ENERGY TECHNOLOGIES (NASCENT)

The University of Texas at Austin in partnership with the University of New Mexico and the University of California, Berkeley

<https://nascent.utexas.edu/>

NASCENT intends to create high throughput, reliable, and versatile nanomanufacturing systems that will revolutionize future-generation mobile computing and energy devices.

CENTER FOR BIORENEWABLE CHEMICALS (CBIRC)

Iowa State University in partnership with Rice University, the University of California, Irvine, the University of New Mexico, the University of Virginia, and the University of Wisconsin-Madison

<http://www.cbirc.iastate.edu/>

CBIRC reduces dependence on petro-chemical feedstocks by integrating biological and chemical catalysis systems to produce biorenewable chemicals.

Biotechnology and Health Care

PRECISE ADVANCED TECHNOLOGIES AND HEALTH SYSTEMS FOR UNDERSERVED POPULATIONS (PATHS-UP)

Texas A&M University in partnership with University of California at Los Angeles, Rice University, and Florida International University

<https://pathsup.org/>

The vision of the NSF-ERC on Precise Advanced Technologies and Health Systems for Underserved Populations (PATHS-UP) is to change the paradigm for the health of underserved populations by developing revolutionary, cost-effective technologies and systems at the point-of-care (POC).

NANOSYSTEMS ERC FOR CELLULAR METAMATERIALS (CELL-MET)

Boston University in partnership with University of Michigan and Florida International University

<http://sites.bu.edu/cell-met/>

CELL-MET aims to transform cardiovascular care by combining breakthroughs in nanotechnology

and manufacturing with tissue engineering and regenerative medicine, while also developing areas of expertise in education, diversity, administration, and outreach.

CELL MANUFACTURING TECHNOLOGIES (CMAT)

Georgia Institute of Technology in partnership with University of Georgia, University of Wisconsin-Madison, and University of Puerto Rico.

<http://cellmanufacturingusa.org/>

CMaT's vision is to enable robust, scalable, low-cost biomanufacturing of high-quality therapeutic cells to bring affordable, curative therapies against incurable chronic diseases to everyone.

NANOSYSTEMS ERC FOR ADVANCED SELF-POWERED SYSTEMS OF INTEGRATED SENSORS AND TECHNOLOGIES (ASSIST)

North Carolina State University (NC State) in partnership with Pennsylvania State University, University of North Carolina at Chapel Hill, Florida International University, and University of Virginia

<http://assistcenter.org/>

ASSIST intends to harness nanotechnology to improve global health by enabling correlation between personal health and personal environment and by empowering patients and doctors to manage wellness and improve quality of life.

CENTER FOR NEUROTECHNOLOGY (CNT)

University of Washington in partnership with the Massachusetts Institute of Technology and San Diego State University

<http://www.centerforneurotech.org/>

The CNT will seek to identify the engineering principles of neural movement control and sensory processing to enable a new generation of robust, adaptive, closed loop, sensorimotor devices that interact with human nervous systems.

ERC FOR REVOLUTIONIZING METALLIC BIOMATERIALS (RMB)

North Carolina Agricultural and Technical State University in partnership with the University of Cincinnati and the University of Pittsburgh

<http://erc.ncat.edu/>

RMB is developing the fundamental knowledge and technology needed to advance biocompatible and biodegradable metal-based, implantable systems with feedback control for reconstruction and regeneration.

Energy, Sustainability, and Infrastructure

CENTER FOR INNOVATIVE AND STRATEGIC TRANSFORMATION OF ALKANE RESOURCES (CISTAR)

Purdue University in partnership with University of New Mexico, Northwestern University, University of Notre Dame, and University of Texas at Austin

<https://cistar.us/>

CISTAR's vision is to create a transformative engineered system to convert light hydrocarbons from shale resources to chemicals and transportation fuels in smaller, modular, local, and highly networked processing plants.

ERC FOR ULTRA-WIDE AREA RESILIENT ELECTRIC ENERGY TRANSMISSION NETWORKS (CURENT)

University of Tennessee-Knoxville in partnership with Northeastern University, Rensselaer Polytechnic Institute, and Tuskegee University (co-funded with DOE)

<http://curent.utk.edu/>

CURENT is developing a nation-wide transmission grid that is fully monitored and dynamically controlled for high efficiency, high reliability, low cost, better accommodation of renewable sources, full utilization of storage, and responsive load.

NANOSYSTEMS ERC FOR NANOTECHNOLOGY ENABLED WATER TREATMENT SYSTEMS (NEWT)

Rice University in partnership with Arizona State University, the University of Texas at El Paso and Yale University

<http://www.newtcenter.org/>

NEWT intends to develop high-performance and easy-to-deploy water treatment systems that will broaden access to clean drinking water from a variety of unconventional sources and enable industrial wastewater reuse at off-grid locations.

ERC FOR BIO-MEDIATED AND BIO-INSPIRED GEOTECHNICS (CBBG)

Arizona State University in partnership with the Georgia Institute of Technology, New Mexico State University, and the University of California, Davis

<https://cbbg.engineering.asu.edu/>

CBBG will employ or mimic natural biological processes and materials to engineer the ground in ways that reduce infrastructure development lifecycle costs and impacts while mitigating natural hazards and environmental degradation.

ERC FOR RE-INVENTING THE NATION'S URBAN WATER INFRASTRUCTURE (RENUWIT)

Stanford University in partnership with the University of California, Berkeley, Colorado School of Mines, and New Mexico State University

<http://www.renuwit.org/>

ReNUWit advances new strategies for urban water systems, enabled by technological advances and informed by a deeper understanding of institutional frameworks, to achieve more sustainable solutions to urban water challenges.

FUTURE RENEWABLE ELECTRIC ENERGY DELIVERY AND MANAGEMENT SYSTEMS CENTER (FREEDM)

North Carolina State University in partnership with Arizona State University, Florida State University, Florida A&M University (HBCU), and the Missouri University of Science and Technology

<http://www.freedm.ncsu.edu/>

FREEDM is developing an electric energy distribution infrastructure system with plug and play capabilities for renewable sources and energy storage systems—i.e., develop a “Smart Grid.”

ERC FOR QUANTUM ENERGY AND SUSTAINABLE SOLAR TECHNOLOGIES (QESST)

Arizona State University in partnership with the California Institute of Technology, the University of Delaware, the Massachusetts Institute of Technology, and the University of New Mexico (co-funded with DOE)

<http://qesst.asu.edu/>

QESST seeks to transform the existing electricity generation system, making it sustainable, ubiquitous, and multifunctional, by developing photovoltaic and quantum energy converters, which fundamentally alter how energy is used.

CENTERS

Microelectronics, Sensing, and Information Technology

ERC FOR POWER OPTIMIZATION FOR ELECTRO-THERMAL SYSTEMS (POETS)

University of Illinois at Urbana-Champaign in partnership with Howard University, Stanford University, and the University of Arkansas

<http://poets-erc.org/>

The aim of the POETS ERC is to improve the electric power density available in tightly constrained mobile environments by integrating novel 3-D cooling circuitry, power converters, and algorithms for smart power management.

NANOSYSTEMS ERC FOR TRANSLATIONAL APPLICATIONS OF NANOSCALE MULTIFERROIC SYSTEMS (TANMS)

<http://www.tanms-erc.org/>

TANMS works to engineer a revolution in miniature electromagnetic electronics through development of a new class of nanoscale multiferroic materials.

CENTER FOR INTEGRATED ACCESS NETWORKS (CIAN)

The University of Arizona in partnership with the California Institute of Technology, Norfolk State University (HBCU), Tuskegee University (HBCU), the Universities of California in Berkeley, San Diego, and Los Angeles, and the University of Southern California

<https://blog.cian-erc.org/>

CIAN strives to overcome the access aggregation bottlenecks of today's optoelectronic networks by integrating optoelectronic subsystems into an advanced optical network that will provide high data rates at low cost while supporting a wide range of end-user needs and applications.

LIGHTING ENABLED SYSTEMS & APPLICATIONS (LESA)

Rensselaer Polytechnic Institute in partnership with Boston University and the University of New Mexico

<http://lesa.rpi.edu/>

Lighting Enabled Systems & Applications ERC develops fully controllable and tunable solid-state light sources that will enable energy savings through higher efficiency lighting sources and improved communication systems.



AGENDA

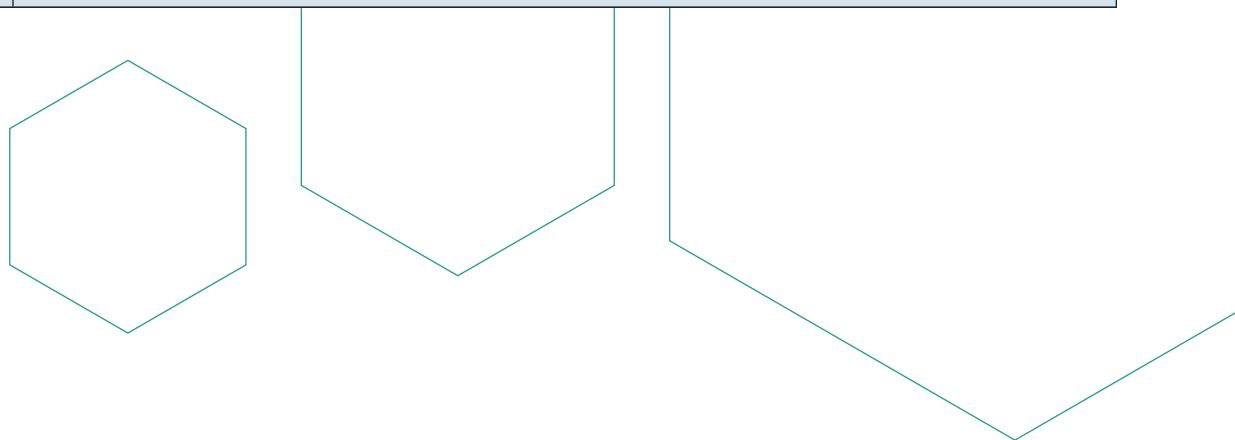
DAY 1: WEDNESDAY, OCTOBER 23

2:00 p.m. – 6:00 p.m.	REGISTRATION <i>Independence Foyer</i>
2:00 p.m. – 5:00 p.m.	ADMINISTRATIVE DIRECTOR MEETING <i>Potomac VI</i>
2:00 p.m. – 5:00 p.m.	INDUSTRIAL LIAISON OFFICER MEETING <i>Potomac V</i>
3:00 p.m. – 4:30 p.m.	PERFECT PITCH WORKSHOP <i>Potomac IV</i> Raquell Holmes , improvscience
5:00 p.m. – 7:00 p.m.	NETWORKING RECEPTION <i>Independence A</i> Raquell Holmes , improvscience



AGENDA

DAY 2: THURSDAY, OCTOBER 24	
7:00 a.m. - 5:00 p.m.	REGISTRATION <i>Regency Foyer</i>
7:00 a.m. - 8:00 a.m.	CONTINENTAL BREAKFAST <i>Independence A</i>
8:00 a.m. - 8:15 a.m.	WELCOME AND INTRODUCTION <i>Regency EF</i> Kon-Well Wang , Division Director, EEC Division, National Science Foundation
8:15 AM - 8:30 a.m.	OPENING REMARKS <i>Regency EF</i> F. Fleming Crim , Chief Operating Officer, National Science Foundation
8:30 a.m. - 9:15 a.m.	KEYNOTE 1 <i>Regency EF</i> Kelvin Droegemeier , Director, White House Office of Science and Technology Policy
9:15 a.m. - 10:30 a.m.	SUSTAINABILITY PANEL <i>Regency EF</i> <i>Moderator:</i> Krishnendu Roy , Center Director, CMaT <i>Panelists:</i> Kaarin Goncz , Teaching Lab Manager, NMIT Veena Misra , Center Director, ASSIST S. V. Sreenivasan , Center Director, NASCENT
10:30 a.m. - 11:00 a.m.	BREAK <i>Regency EF Foyer</i>



DAY 2: THURSDAY, OCTOBER 24

11:00 a.m. - 12:30 p.m.	<p>BREAKOUT SESSION 1</p> <p><i>1A: Waking Up to Implicit Bias - Potomac I</i> Denise Driscoll, Director of Diversity and Inclusion, CISTAR</p> <p><i>1B: Bias Busting Across the Center - Potomac II</i> Tricia Berry, Director of the Women in Engineering Program, University of Texas at Austin Carolyn Nichol, Education Director, NEWT</p> <p><i>1C: The ASU Tri-ERC Consortium - Potomac III</i> Adam Carberry, Associate Professor, Arizona State University Alison Cook-Davis, Assistant Director for Program Evaluation, Arizona State University's Office of Evaluation and Educational Effectiveness Michelle Jordan, Education Director, QESST Jean Larson, Educational Director, CBBG Megan O'Donnell, Research Professional, College Research and Evaluation Services Team, ASU</p> <p><i>1D: Science Communication - Potomac IV</i> AnneLynn Gillian-Daniel, Director of Education and Outreach, Materials Research Science and Engineering Center at the University of Wisconsin-Madison</p> <p><i>1E: Continuous Creation and Evolution of Value Propositions at All Levels within ERCs - Potomac V</i> Paul Westerhoff, Deputy Director, NEWT</p>
12:30 p.m. - 1:30 p.m.	<p>WORKING LUNCH <i>Regency EF</i></p>
1:30 p.m. - 3:00 p.m.	<p>THE DIVERSITY FORMULA <i>Regency EF</i></p> <p>Ron Jones, Executive Director, Dialogues on Diversity Tierre Diaz, Actor, Dialogues on Diversity</p>
3:00 p.m. - 3:30 p.m.	<p>BREAK <i>Regency EF Foyer</i></p>
3:30 p.m. - 5:00 p.m.	<p>BREAKOUT SESSION 2</p> <p><i>2A: Center Directors - Potomac I</i> <i>2B: Diversity Directors - Potomac II</i> <i>2C: Industrial Liaison Officers - Potomac III</i> <i>2D: Administrative Directors - Potomac IV</i> <i>2E: Student Leadership Council - Potomac V</i> <i>2F: Education Directors - Potomac VI</i></p>
5:00 p.m. - 5:30 p.m.	<p>PRESENTATION OF BREAKOUT SUMMARIES <i>Regency EF</i></p>
5:30 p.m. - 7:30 p.m.	<p>NETWORKING POSTER SESSION <i>Independence A</i></p>

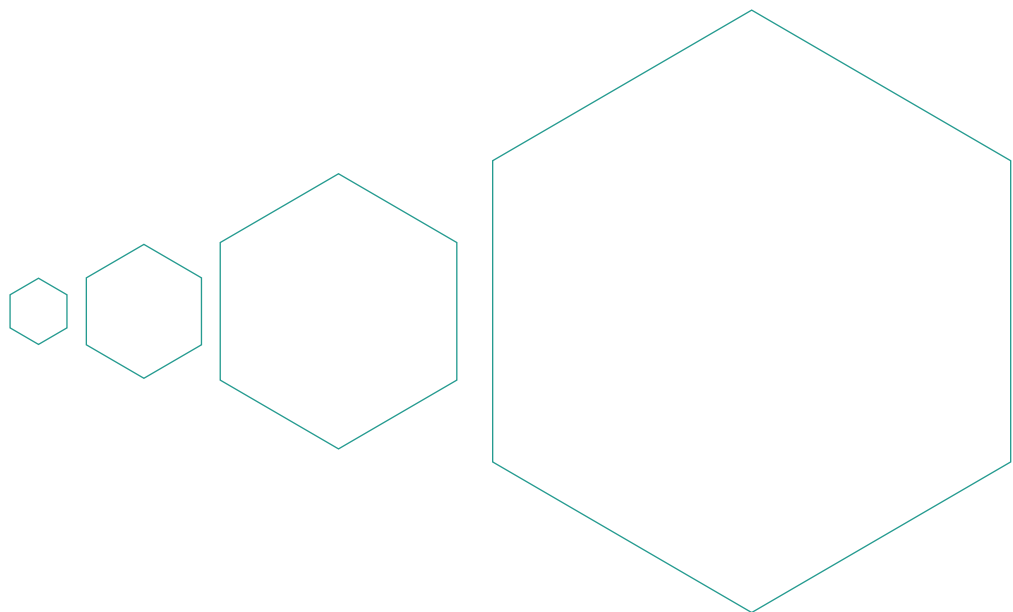
AGENDA

DAY 3: FRIDAY, OCTOBER 25	
7:00 a.m. - 3:00 p.m.	REGISTRATION <i>Regency Foyer</i>
7:00 a.m. - 8:00 a.m.	CONTINENTAL BREAKFAST <i>Independence A</i>
8:00 a.m. - 8:15 a.m.	WELCOME <i>Regency EF</i> Don Millard , Deputy Division Director, EEC Division, National Science Foundation
8:15 a.m. - 8:30 a.m.	ERC HISTORY BOOK PROJECT <i>Regency EF</i> Courtland S. Lewis , President, SciTech Communications, LLC
8:30 a.m. - 9:30 a.m.	BREAKOUT SESSION 3 <i>2A: Center Directors - Potomac I</i> <i>2B: Diversity Directors - Potomac II</i> <i>2C: Industrial Liaison Officers - Potomac III</i> <i>2D: Administrative Directors - Potomac IV</i> <i>2E: Student Leadership Council - Potomac V</i> <i>2F: Education Directors - Potomac VI</i>
9:30 a.m. - 10:00 a.m.	PRESENTATION OF BREAKOUT SUMMARIES <i>Regency EF</i>



DAY 3: FRIDAY, OCTOBER 25

10:00 a.m. - 10:30 a.m.	BREAK <i>Regency EF Foyer</i>
10:30 a.m. - 12:00 p.m.	PERFECT PITCH COMPETITION <i>Regency EF</i>
12:00 p.m. - 1:00 p.m.	LUNCH <i>Regency EF</i>
1:00 p.m. - 1:45 p.m.	KEYNOTE 2 <i>Regency EF</i> C. D. Mote , President Emeritus, National Academy of Engineering
1:45 p.m. - 2:45 p.m.	PANEL: Q&A WITH NSF PROGRAM OFFICERS <i>Regency EF</i>
2:45 p.m. - 3:15 p.m.	PERFECT PITCH AWARD AND REMARKS <i>Regency EF</i> Dawn Tilbury , Assistant Director, Engineering Directorate, National Science Foundation
3:15 p.m. - 3:30 p.m.	WRAP-UP AND CLOSING REMARKS <i>Regency EF</i> Kon-Well Wang , Division Director, EEC Division, National Science Foundation



BREAKOUT SESSION 1 DESCRIPTIONS

1A: WAKING UP TO IMPLICIT BIAS IN TEAMS AND ONCE 'WOKE,' HOW TO RESPOND?

Denise Driscoll, Director of Diversity and Inclusion, CISTAR

Research shows that implicit bias is one reason that people from groups underrepresented in engineering are dissatisfied at work, and, in some cases, even leave their professional jobs. Especially when working in teams, implicit bias can be pervasive and go unnoticed by other team members (i.e., assigning underrepresented team members to clerical types of jobs, interrupting them more). How can we teach students to “wake up” to implicit bias and its negative effects on underrepresented team members, in particular, and on teams, more generally? An example of one “wake up” training tool will be presented. The remainder of the session will be a discussion with activities/exercises designed to encourage thinking about other ways to “wake up” students to the presence of bias in teams, and once “woke,” to discuss how one might effectively intervene to de-bias one’s team.

1B: BIAS BUSTING ACROSS THE CENTER: A MODEL TO INTERRUPT BIAS AND PROMOTE INCLUSION

Tricia Berry, Director of the Women in Engineering Program, University of Texas at Austin

Carolyn Nichol, Education Director, NEWT

Learn how your organization can go beyond diversity to inclusion. Participants will both experience the workshop and learn facilitation techniques to be able to present the workshop in their own centers and organizations. The Bias Busting Workshop engages participants in creating commitments to greater inclusivity by focusing on summaries of research evidence around implicit bias and stereotypes with rich discussions of personal experience and observations woven throughout. The workshop wraps-up with role playing and small group discussions based on relevant and real-life scenarios to provide participants with tools for bias busting interventions across campus.

The Bias Busting Workshop was originally created by Google, adapted for academia by Carnegie Mellon, and further customized by The University of Texas at Austin for various audiences including undergraduate students, graduate students, faculty and staff. The NSF Nanosystems Engineering Research Center (NERC) for Nanomanufacturing Systems for Mobile Computing and Mobile Energy Technologies (NASCENT) has implemented the Bias Busting Workshop throughout the center with presentations to students, staff and faculty. In addition, the workshop was shared with Nanosystems Engineering Research Center for Nanotechnology Enabled Water Treatment (NEWT) staff in a train-the-trainer format for further dissemination.



1C: THE ASU TRI-ERC CONSORTIUM: ESTABLISHING A COMMON SET OF TOOLS FOR EVALUATING EDUCATIONAL PROGRAMS WITHIN AND ACROSS ERCS

Adam Carberry, Associate Professor,
Arizona State University

Alison Cook-Davis, Assistant Director for Program
Evaluation, Arizona State University's Office of
Evaluation and Educational Effectiveness

Michelle Jordan, Education Director, QESST

Jean Larson, Educational Director, CBBG

Megan O'Donnell, Research Professional, College
Research and Evaluation Services Team, ASU

Education and evaluation representatives from CBBG, NEWT, and QESST ERCS have joined forces to form a Tri-ERC Consortium at Arizona State University. The consortium has collaborated to co-develop, test, and disseminate instruments and protocols that appropriately measure ERC education and diversity programs across ERCS. This work is supported by an NSF ERC supplement.

1D: EFFECTIVE COMMUNICATION THROUGH IMPROV

AnneLynn Gillian-Daniel, Director of Education
and Outreach, Materials Research Science
and Engineering Center at the University of
Wisconsin-Madison

During this interactive workshop, participants will practice using improvisational techniques to improve their communication skills in a fun and encouraging environment. The activities presented in the workshop are taken from a graduate-level, improv-based science communication course taught at UW-Madison. During this session, participants will engage in activities and games that will help them practice: 1) vocal and visual communication, 2) active listening skills, 3) responding quickly to unexpected situations. Participants will then explore how they can use these skills to effectively talk about their research. All attendees are expected to fully participate in the workshop.

1E: CONTINUOUS CREATION AND EVOLUTION OF VALUE PROPOSITIONS AT ALL LEVELS WITHIN ERCS

Paul Westerhoff, Deputy Director, NEWT

The Nanosystems ERCS were introduced to a Value Proposition approach developed by Curt Carlson while at SRI (<https://www.sri.com/>), and who contributed to the NAE ERC report. The Value Proposition approach is an interactive approach that focuses equally on the Need, Approach, Benefits, and Competition (NABC) of a potential project (<http://www.practiceofinnovation.com/the-practice-of-innovation/>). The structured process aims to be quantitative and understand customer needs. Our Center has embraced this approach at all levels, ranging from inclusion in PhD proposals/dissertations, annual proposal calls, and pitches to our industrial members. A central point of the NABC approach is understanding the process and providing positive feedback in a way that aims to be inclusive of all team members. Rice University and Arizona State University have expanded this Value Proposition into other aspects of fundamental discovery and applied research within engineering, including hosting multi-day workshops at our universities with engineering faculty. NEWT has seen tremendous value in adopting a consistent value proposition model across our center, because it creates a common language and understanding for diverse stakeholders.

This session aims to understand how different ERCS define and approach value propositions.

KEYNOTE SPEAKERS



Kelvin K. Droegemeier
*Director, White House Office of
Science and Technology Policy*

As Director of The White House Office of Science and Technology Policy (OSTP), Dr. Kelvin K. Droegemeier serves as President Donald J. Trump's science advisor and leads

OSTP in its coordination of science and technology initiatives across the Federal Government. Kelvin's background is in extreme weather, numerical weather prediction, and data assimilation.

Before joining The White House, Kelvin served as Vice President for Research and Regents' Professor of Meteorology at the University of Oklahoma, where he joined the faculty in 1985 as Assistant Professor of Meteorology. In his 33 years at the University of Oklahoma, Kelvin generated more than \$40 million in research funding and authored or co-authored more than 80 refereed articles and 200 conference publications. He also co-founded, directed, and led the National Science Foundation (NSF) Science and Technology Center for Analysis and Prediction of Storms (CAPS) and served as co-founder and Deputy Director of the NSF Engineering Research Center for Collaborative Adaptive Sense of the Atmosphere (CASA).

Kelvin served two six-year terms on the National Science Board, the governing body of the NSF, including the last four years as Vice-Chairman, having been nominated by Presidents George W. Bush and Barack Obama and twice confirmed by the United States Senate. He has also served on and chaired numerous national boards and committees and is a Fellow of the American Meteorological Society and American Association for the Advancement of Science. He was appointed in 2017 as Oklahoma Cabinet Secretary of Science and Technology.

Born in Kansas, Kelvin earned a B.S. in meteorology from the University of Oklahoma and M.S. and Ph.D. degrees in atmospheric science from the University of Illinois at Urbana-Champaign.



C.D. Mote, Jr.
*President Emeritus, National
Academy of Engineering*

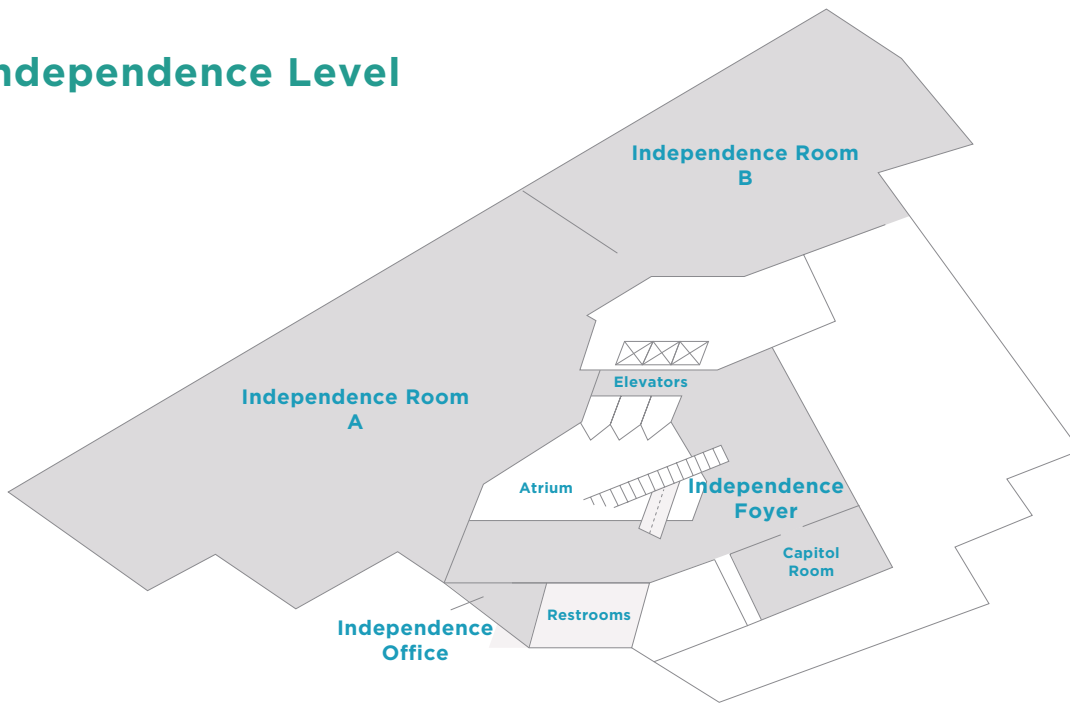
Dr. C.D. Mote, Jr. is the immediate Past President of the National Academy of Engineering, and Regents Professor from the University of Maryland where he served

as its President 1998-2010. Mote is recognized for impacts he has made as a scholar, inventor, educator, mentor, and as a leader who has advanced higher education, innovation and the engineering profession. He is the recipient of the ASME Medal, the NAE Founders Award, and the Humboldt Prize of the Federal Republic of Germany. He has authored/co-authored over 300 publications, including serving on the pre-eminent committee for the consensus report "Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future (2007)", and holds four patents.

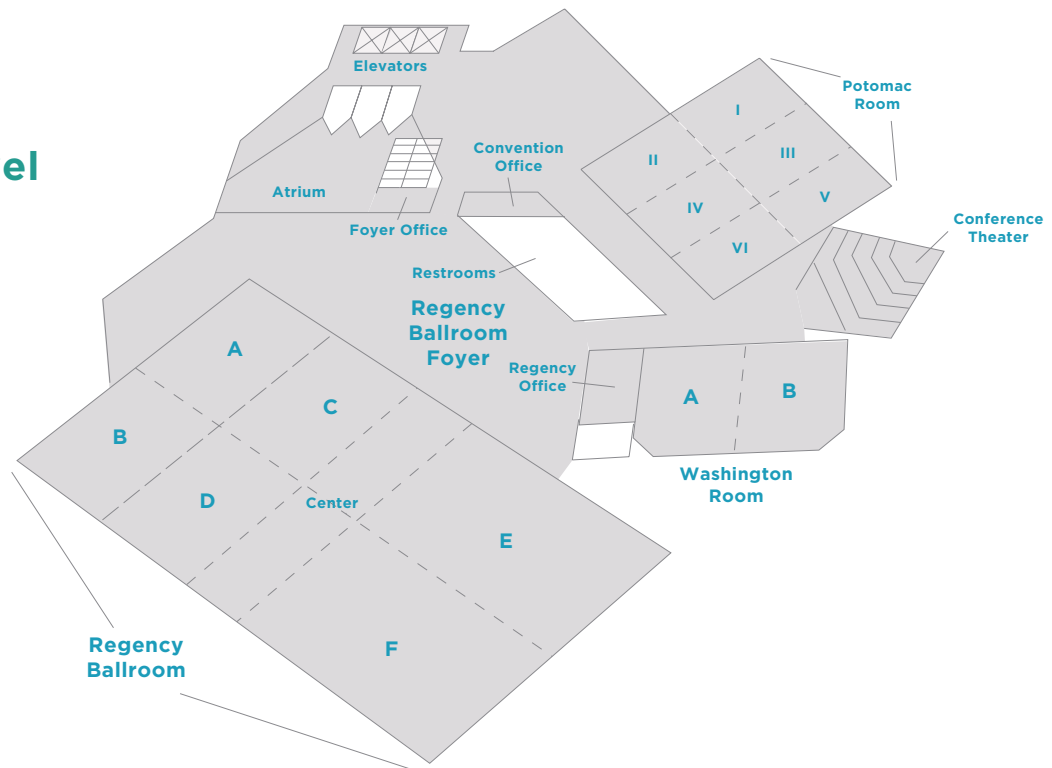
Mote is an honorary fellow of ASME, honorary member of ASEE, a fellow of: American Academy of Arts and Sciences, American Academy of Mechanics, ASA, and the American Association for the Advancement of Science. He was elected to membership in the NAE in 1988 and as President in 2013. Mote was elected to the Chinese Academy of Engineering, and as honorary academician of the Academia Sinica, Taiwan. In 2017, he was elected a Fellow of the National Academy of Inventors. Dr. Mote is committed to ensuring highly competitive talent in the US engineering workforce, facilitating public understanding of engineering, demonstrating how engineering creates a better quality of life and engaging the academy in global engineering issues in support of national interests.

VENUE FLOOR PLANS

Independence Level



Ballroom Level



NOTES

NOTES



ercbiennial.asee.org

